



# NEIGHBOURHOOD AMENITIES

Neighbourhood amenities are typically classed as amenities that are used by the public of a local community or neighbourhood. A few commonly known neighbourhood amenities include, laundromats, movie theatres, swimming pools, parks, pubs and bars, gyms, arcades and to an extent, public toilets and libraries.

Today's society sees these amenities operate in many different ways, as a result of socioeconomic classes, building types, cultural and political environments as well as the state of global and local economies.

## Where are they going?

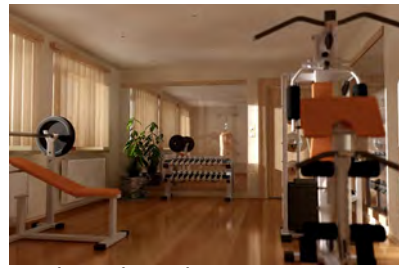
### Countries and Cultures:

In western civilization, developing countries affected by globalization, capitalist driven countries and countries where economies are thriving, the want to consume and incorporate neighbourhood amenities into housing is common practice.

This type of behavior can be somewhat categorized into a model where housing is becoming isolated from its local community with the introversion of neighbourhood amenities to private ones. The model breeds a sort of individualist relationship between the people and their local environments.



Home Gym



Backyard Pools



Home Theatre



Laundry



Connections are now made through new media such as the internet and not through a chat about life with a neighbour at the laundromat. The argument that the internet and new media connects people to a greater community seems to be enough and connections beyond the digital are seemingly lost.

Countries of this nature include; Australia, America, Europe, Russiae etc. and where ever economic prosperity and the use of new media is commonplace.

The flip side to this model can be found in countries and with cultures that pride a sense of community and share what little or what most they have with one another and form their own sub-cultures of neighbourhood amenities.

Examples can be found in places like Zambia, South Africa where people share knowlegde and provide education to younger generations by setting up community schools. In cities like Shanghai where space is limited and populations are dense, people must share amenities and are forced to interact with their neighbourhood.

The encouraged use of neighbourhood amenities and the success can be seen as a separate model, almost the complete inversion of the first model, where countries and cultures are grounded in such activites for economic, social and even spatial reasons.

Gym



Public Pools



Movie Cinema



Laundromat



Economic Prosperity:

Money is a major factor into the reasons why amenities are utilized or underutilized. This means the amount of money owned by the individual but moreso the amount of money circulating the country, ie. The state that the economy is in. Growth, decline etc. The effects of natural disasters and global crisis also have influence on the use of neighbourhood amenities.

Simple things like the cost of a movie ticket or the price of a beer will cause most people to rethink the use of neighbourhood amenities. It might mean staying at home and grabbing a beer from the fridge rather than going to the local bar for a drink or cooking for oneself as opposed to going out for dinner. The expendibility of a persons income will generally dictate this outcome.

In areas affected by crisis, the sense of neighbourhood and community grows stronger as people band together. It reminds that humanity still exists. This can happen and does happen all over the world. The crisis brings out the need to share within locally affected areas, whether it be through the setting up of relief housing, sharing amenities with those who have lost their own or programs created in times of economic crisis to distribute services and amenities to people in need.



Kitchen



Mini Bar



Pool Room



Personal Computers



Some key examples have been:

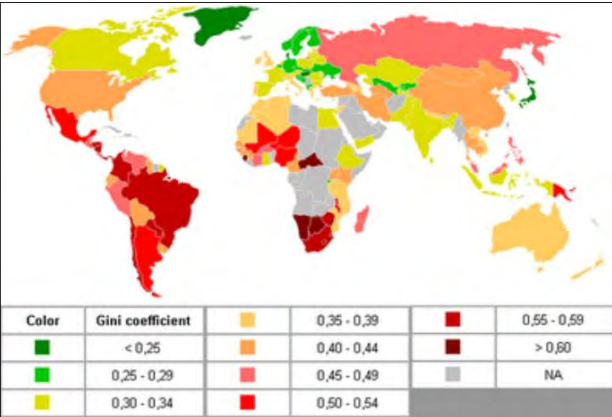
-Post WWII efforts to battle the depression, parts of Europe formed neighbourhood amenity projects with mixed success.

-Haiti earthquake and the world's response and support to create temporary housing in the form of tent communities with shared amenities.

The success of neighbourhood amenities in these circumstances is one that is difficult to apply to a housing model that isn't just emergency relief. However it adds to the growing number of successes that create the Model 1 of neighbourhood amenities shown further on.

Socio economic classes:

Below the economic state of the country comes the socioeconomic divisions within cities, communities and countries. Upper, middle and lower class divisions vary from country to country and accordingly, the use of public amenities seems to follow.



Global inequality diagram - showing developed countries with the larger class divides.

Cafe



Bar / Pub



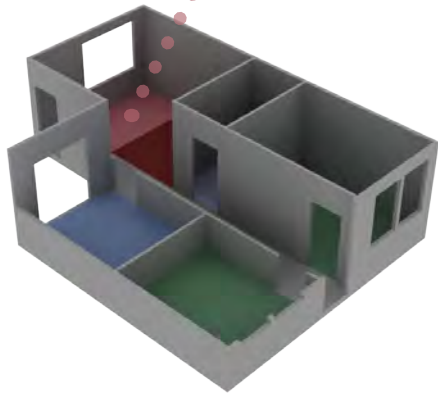
Pool Hall



Arcades



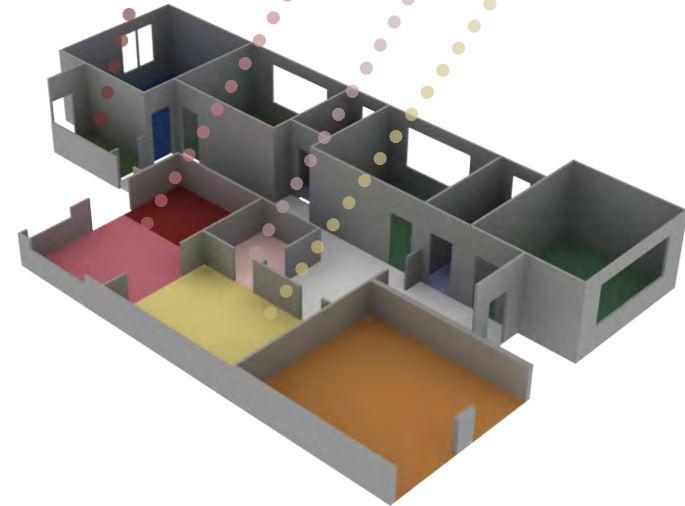




Model 1

Circumstances, building types and examples that create the need and form sustainable usage of neighbourhood amenities by using a basic number of amenities to live and sharing the rest.

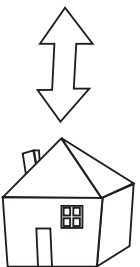
- Low socio economic background/ lower class
- Countries in crisis or economic recession
- Parts of Asia, Europe and South America where apartment buildings take on the challenges of population densification
- Student and shared housing
- Apartment buildings
- Commission and Communal housing

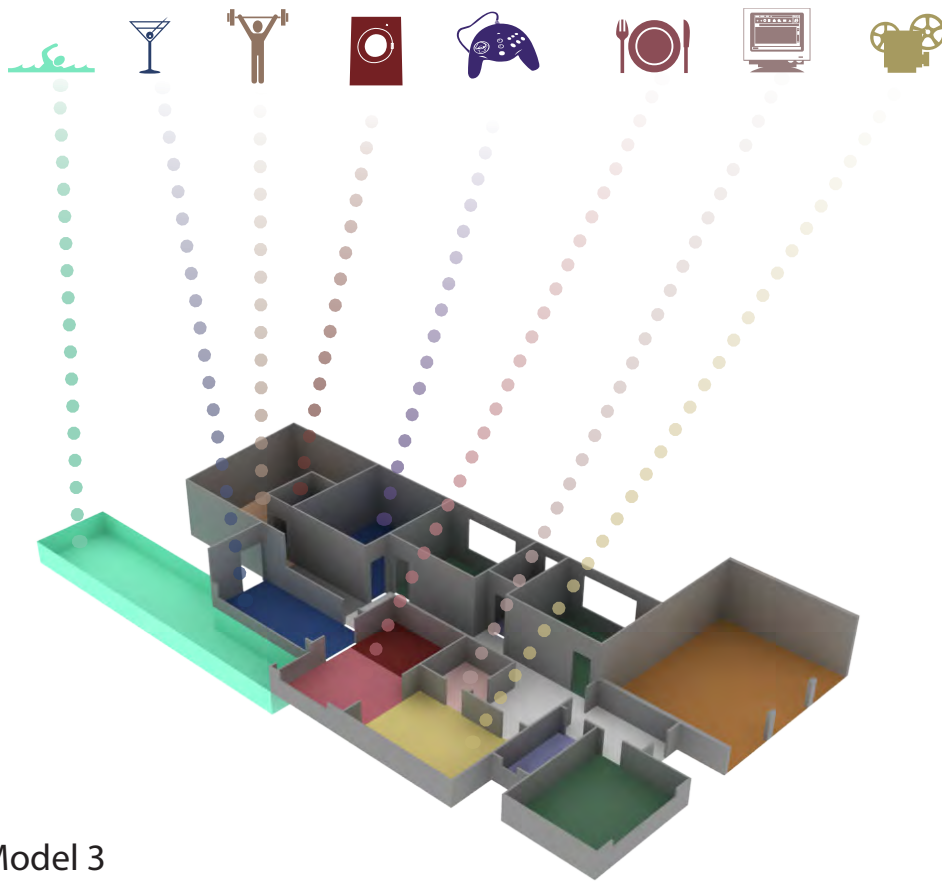


Model 2

Circumstances, building types and examples that demonstrate mixed usage of neighbourhood and private amenities.

- Middle Class
- Apartment buildings
- Renovations and additions to traditional housing models
- Modern houses and townhouses
- Villas and holiday houses





### Model 3

Circumstances, building types and examples that keep the use of amenities mostly private and isolated.

- Upper class
- 'The American Dream' houses in America, Australia etc. which strive to be bigger and fit more in.
- Consumerists with high disposable incomes
- Economic growth and prosperity
- Highly renovated homes in heritage overlay areas
- Mansions



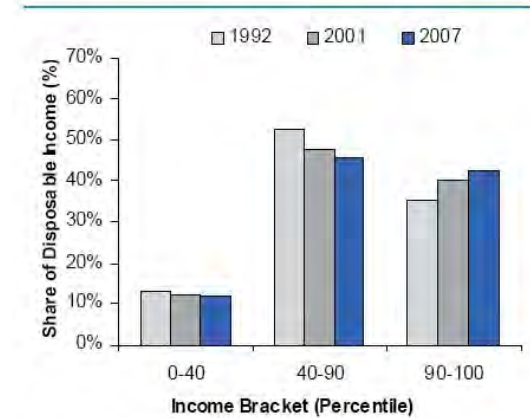
### Disposable income of Americans 2007 (right)

The upper class tend to have big houses and put everything in their house. However, because they have such a large disposable income they can afford to go to the café and the café then becomes like a public amenity. In this case a neighbourhood kitchen for the upper class.

Middle class gradually add to their homes over time the services and amenities they need to live comfortably and in many ways to live sustainably. For example, including a media room and entertaining at home to save money on going out to movies or dinner etc.

Lower classes are less subject to consumerism and take a bottom up approach to what is available to them due to their limited resources. The trend is for lower class suburbs and communities to actively utilize services like laundromats and things that are a necessity for living. It is interesting to note that in communities where crime and poverty are high, neighbourhood and community amenity projects like community gardens etc, bring neighbourhoods together to take ownership and responsibility for their immediate surrounding environment.

...Disposable Income, and Arguably Consumption Too



Source: Survey of Consumer Finances

Rank	Countries	Amount
#1	Ireland	3.1
#2	Japan	2.8
#3	Italy	2.7
#4	United States	2.6
#4	Canada	2.6
#4	Australia	2.6
#7	Austria	2.5
#7	Finland	2.5
#7	France	2.5
#10	Belgium	2.4
#10	United Kingdom	2.4
#12	Netherlands	2.3
#12	Switzerland	2.3
#14	Norway	2.2
#14	Denmark	2.2

Average household sizes (# people)

USA	214	France	113
Australia	206	Spain	97
Denmark	137	Ireland	88
		UK	76

Average house sizes (metres squared)

Country to country, the divide between the classes vary and so the way amenities are used varies too. In cities like, Dubai where the rich are incredibly rich and the poor are incredibly poor. The two ends of the socioeconomic scale are noticeable and reflect highly, models one and three respectively. Variations arise when people can afford more than they need and end up with a house full of unused amenities as what is happening in Australia.

### Building types:

The actual type of building too can influence how amenities in the local area are used. In high density cities such as Shanghai the **apartment buildings** that house the cities inhabitants don't cater often, due to space restrictions, to amenities fitting inside their home. In these cases, amenities and connections to neighbourhood are stronger due to necessity.

**Student housing** models promote the sharing and use of space to create internal communities and essentially neighbourhoods that work together and share amenities. These can be classified as sub-neighbourhoods due to the way they fit into the greater neighbourhood.

**Public housing** projects like Robinhood Garden by the Smithsons, tried to create neighbourhood models that shared public space and amenities with limited success.

**Flats and small units** with limited amenities typically congregate around suburbs in high demand where home owners move out of their homes, knock them down and then put three units on there.

**Townhouses** were built on narrower blocks to fit more people in and generally within inner city suburbs as parking was not included.

**Mansions** are a result of generally upperclass people having high disposable incomes and desiring large houses to fill with expensive junk. This conforms to the third model where they have everything.

Etc.

Townhouses, Seattle



Commission housing, Collingwood



Communal housing by Lorcan O'Herlihy



Flats in Sydney



Mansions, America



### Overview:

There are an infinite number of variations between the three models classified in this study but typically each of these models can be generalized to suit most situations as discussed.





# GLOBALISATION

There are many different definitions of globalisation, but most acknowledge the greater movement of people, goods, capital and ideas due to increased economic integration which in turn is propelled by increased trade and investment. There is no limit on this movement, no borders and for the most part it keeps moving forward.

There has always been a sharing of goods, services, knowledge and cultures between people and countries, but in recent years improved technologies and a reduction of barriers means the speed of exchange is much faster.

Of course even in a country that is benefiting from globalisation such as Australia, there are residents who don't. Some people's incomes don't keep up with the rising rate of inflation that is dictated by how strong the economy is doing.

However in order to understand globalisation closer to home, it is important to understand the affect it has had on everyday lives of those within Australia, in these case examples the aim is to show how people, and the homes they live in, are and have been, affected by Globalisation.

These case studies show how the size, attitudes towards, use and even occupants of houses have changed over the last hundred years. This explored through comparisons of price, size and use of spaces within the average home. The first 5 case studies show how a building can be constructed at a certain point in globalisation, yet its use may change in the future to dictate the globalisation status of the time.

## What effects have globalisation had on the average Australian in the last century?

Ownership of a car-  
The mass production of cars due to the cheaper cost (in part due to globalisation) allowed more people to own them, this *in turn changed the configuration of suburbia*. People were able to drive long distances to and from work, by-passing the use of a public transport system.



The access to modern technology at a comparatively cheap cost- This allows the upgrading of household items relatively quickly . Aswell as allowing the average person to have access to a computer, internet and keep up with the current trends regarding any part of their lives, from fashion to their home furnishing

Cheap travel- This has allowed the average Australian to see the world, and to gain knowledge of other cultures first hand, this has influenced the way they think, work and act.

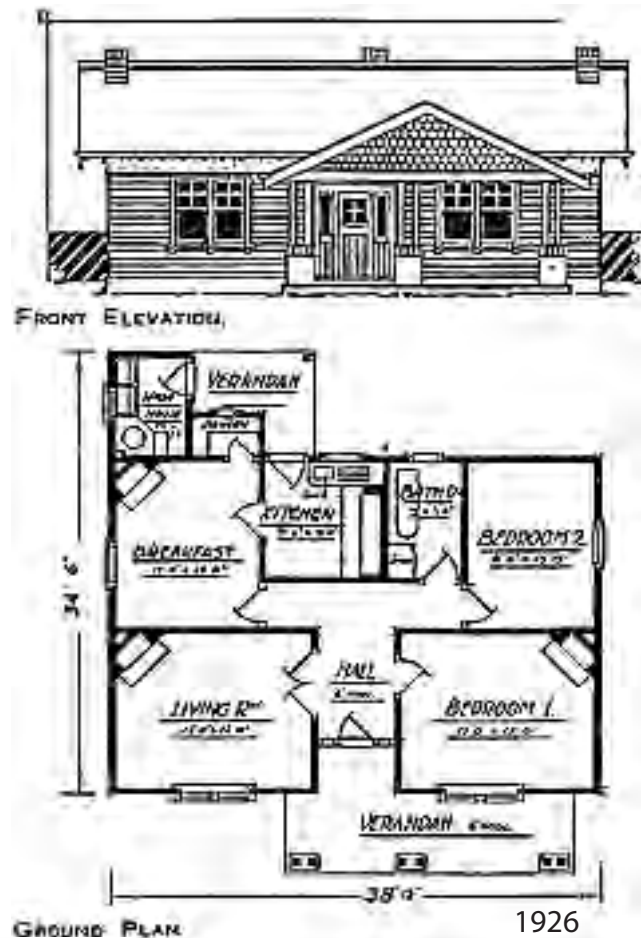


# STATE BANK HOUSING

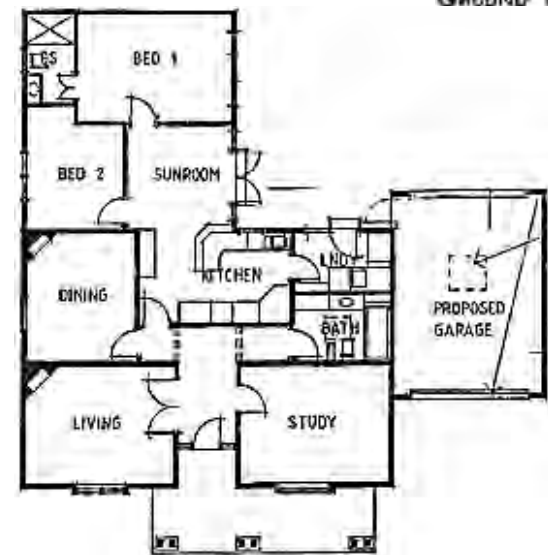
WILLIAMSTOWN

CIRCA 1926

The original owners were George and Hilda who built the house as newly-weds and would remain in the house for the rest of their lives, a span of almost 60 years. They were not infected by the consumerist ethic of the twentieth century and assembled only a modest collection of furnishings. They made few alterations to the house, probably because it continued to fulfil their limited requirements. Because they had no children there was always ample



The new owners are a couple from the south-eastern suburbs, who are now empty-nesters. They bought the house in 1990 and decided to extend the property "were not restoring, but renovating the house. A garage was added to the side, significantly changing its appearance. Here, much of the renovation work has been carried out. The demolished kitchen chimney and laundry copper provided the bricks for pathways, while the jarrah from the back verandah was recycled as kitchen cupboards."



1997

'Flats are growing at King's Cross at the rate of 2000 per year. There are still people who will regard these figures gloomily. They associate flats with open-air cafes, night-life, wine-drinking, and other curious concepts of 'Continental' depravity. To the sociologist, the spread of flat life is of extraordinary importance. It indicates an escape from the servitude of suburbia. At an inquest in London last week, a doctor said that a woman who had killed herself was suffering from "suburban neurosis" - a gloomy sense of isolation and apathy. It is a grave social problem', he said. **'The Danger of "Suburban Neurosis", Daily Telegraph, June 1938.**

# EARLY APARTMENT HOUSING

MANLY N.S.W.

CIRCA 1928



Changes over the years include, The sealing in of balconies (The two lower units were enclosed prior to 1959 while the top floor bays were filled during the early 1970s). An external laundry was originally built at the rear of unit two to service all apartments. With the exception of unit two and hinting at the atomisation of post-industrial life, all units now have laundry facilities incorporated into bathrooms. At the same time, and reflecting the impact of the motor car on street parking in the area, The caretaker had a double garage built for herself in the mid 70's and majority of the backgarden is now carspaces.



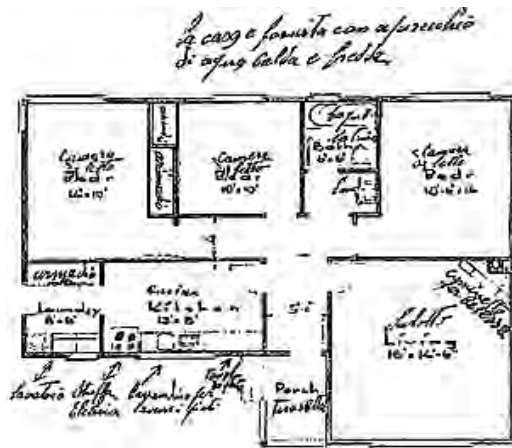


# SELF-BUILT HOUSING

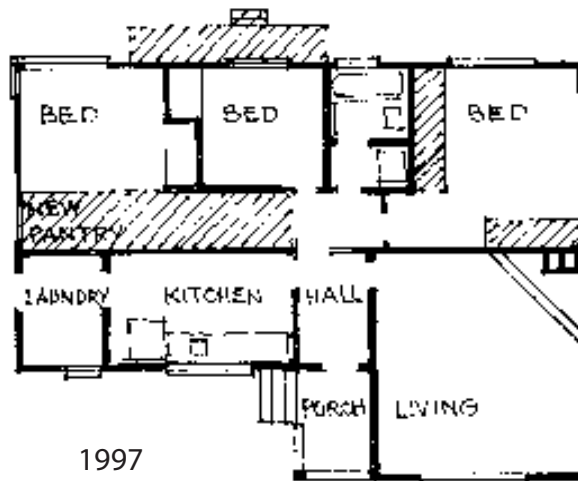
COOMA N.S.W.

CIRCA 1951-52

Like thousands of others in post-war Europe, Luigi was drawn by the promise of work and opportunities that could not be found in the 'old country'. His wife, Anna, and their five children (Carlo, Stella, Lilli, Nina and newborn Ines) stayed at home near Venice, Italy. Within eighteen months of arrival, Luigi had bought a block of land and sent plans for his new house back to the family. He built his house in his spare time, in 1951-52, using hardwood timber from a local mill and fibro sheeting. Fibro was a popular building material in Cooma, as it was available and relatively cheap. Nevertheless, the cottage had electricity, water and heating. When Carlo moved back in he decided to renovate the cottage. The kitchen was enlarged to nearly twice the size. He changed the middle bedroom to create a study, and added new built-in robes in the main bedroom. The tin roof, was replaced with conventional colorbond sheets. modernised the bathroom, replaced the timber windows with aluminium ones, and an extra toilet at the rear. Although it is still considered a basic house by most



1951



1997

# COMMISSION HOUSING

BROADMEADOWS

CIRCA 1954

Carmel McMennemin still rents her home, 56 years after she and husband Kevin moved into one of the Victorian Housing Commission's new concrete houses at Broadmeadows in outer Melbourne. The floor was bare boards. The gas water heater and copper, concrete wash trough, four-legged gas stove and open fireplace were the only interruptions along hastily-painted walls. In all a basic, 3 bedroom home, un-insulated and without a heater, as this was disallowed, because it would have meant minor structural adjustments to a house the Commission consistently reminded them they



1954

In the 1960s and 1970s inspections were tenants' most frequent contact with the Commission; 'I dreaded the inspections ... I felt I was under a microscope.' Demands for late rent were instantaneous, but the family had to wait until the late 1970s for a new water heater and a new stove. It was 1974 before the toilet was moved inside and insulation was provided for houses in which people must still heat their kitchens by opening the door of the gas stove. This is an example of low-wage earners whom originally intended to move in temporarily to save for a house of their own, They could never save enough, or keep up with the soaring cost of land or new homes.



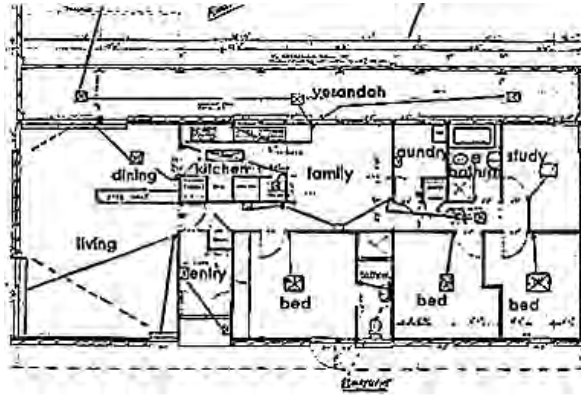
1997

# FUNCTIONALIST HOUSING

MT WAVERLEY

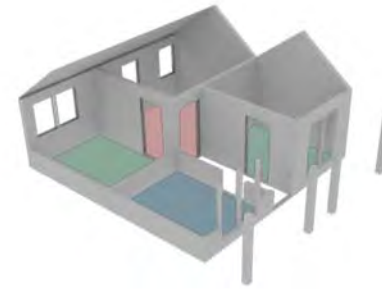
CIRCA 1969

This house was one of many designed by Pettit and Sevitt, a firm based in Sydney and specialising in Mass-Produced homes able to offer the middle-class house purchaser an architect-designed house at a lower price. Pettit and Sevitt incorporated design principles in their houses through simple lines, 'natural' features and an emphasis on functionalism.



The owners Megan and Simon moved into their house in February 1969 and “it was a lovely house for the two of us”. But within six years their three children were born. As the children grew the house seemed to shrink. Initially one room was used as a study, two of the boys shared a room and the eldest had his own until they were all at school, then Megan and Simon “reluctantly gave up our study and gave them a room each”.

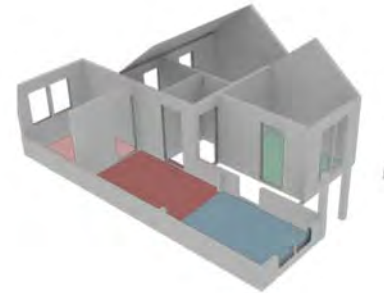
All documents kept in the study had to be stored in filing cabinets around the house. The computer was set up in the entrance hall and the dining room table doubled as a desk. The family room was the living area but the kids soon spilled over, and the lounge was used for Lego and cubby houses in the winter months. No major changes have been undertaken to the house since they moved in but Megan and Brian intend removing walls to create a large study and extend the family room after their children leave home, to enjoy the space they had when the house was built.



1880'S

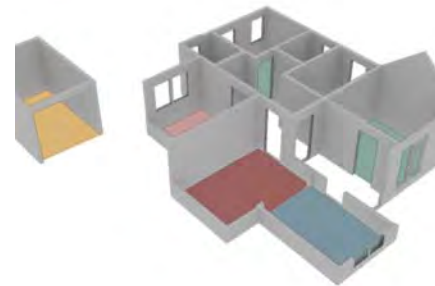
## GLOBALISATION'S EFFECT ON HOUSING

The average 1880's home consisted of 2 bedrooms a living/ dining area (parlour) and a kitchen with a toilet in the backyard and moveable bathtub  
ave price (inflation and quality adjusted ) \$75,000



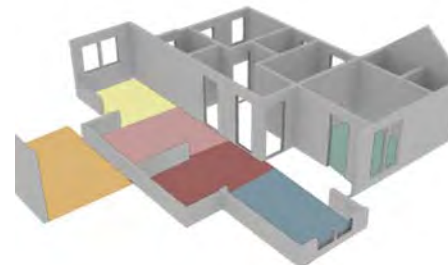
1920'S

The bungalow of the 1920's becomes a little larger, with a dedicated dinning area or breakfast room, 2 bedrooms and an indoor bathroom an outdoor toilet and laundry.  
ave price (inflation and quality adjusted ) \$60,000



1950'S

The post-war home of the 1950's, a complete indoor laundry and bathroom, a 3rd bedroom, still only a dining and living room used for shared space aswell as kitchen. Garage in most homes  
ave price (inflation and quality adjusted ) \$100,000



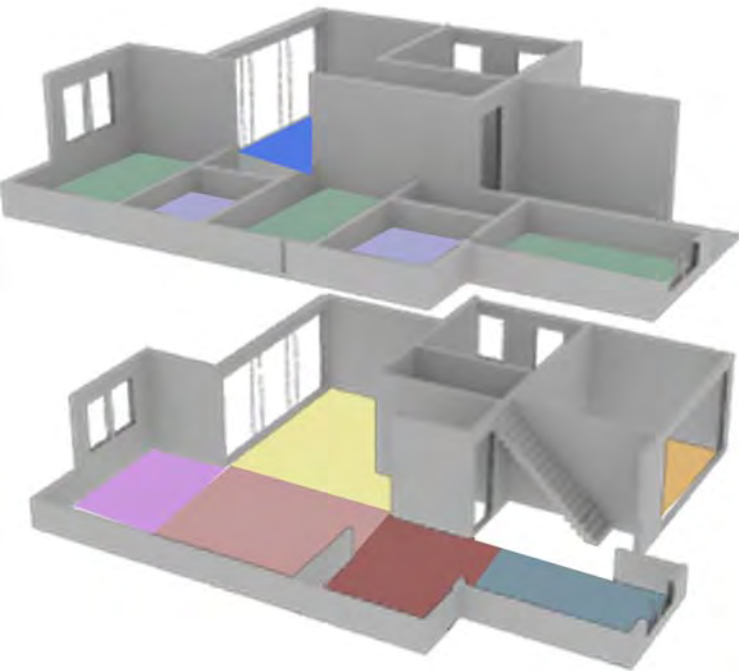
1970'S

The home of the 70's expands again, another living area, double garage, ensuite and w.i.r. have all been added bringing the average size of the home to be 163.6m2  
ave price (inflation and quality adjusted ) \$200,000



# MODERN HOUSE

OFF THE PLAN  
CIRCA 2010



- LIVING
- BEDROOM
- KITCHEN
- DINING
- BATHROOM
- GARAGE
- FAMILY
- RUMPUS

The Modern home, in this example bought off the plan, from a developer of an estate, shows how the huge amount of area now taken by the average home. By now, a middle class home consists of 4 bedrooms, a formal living and dining area, open plan kitchen, meals, family room, rumpus, at least 2 bathrooms and a study.

bringing the size of the home to around 215 square metres, up 10% in the last decade. The average price. \$530,000. Which is 8.5 times the average median household income of \$61,850. The effect of globalisation is clear, a stable or increasing economic status causes house prices and sizes to go up, getting to a point where if you are not benefiting from globalisation personally, you'll be pushed out of the housing market

## OVERVIEW:

The effect of globalisation is evident in most of today's culture. There is no escaping it.

However it is important to remember that there are pockets of Australia that have been affected in a detrimental way due to globalisation and it's also important that this be rectified in anyway possible, whether through cheaper housing, assisted financial support etc.

With the current trend in globalisation the cost of housing will only get worse, and it is important that this issue of affordability is solved.



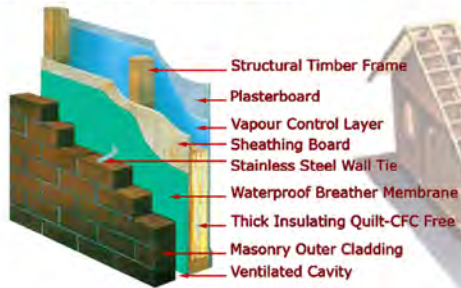
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<http://www.stubbornmule.net/2009/06/property-prices/>  
<http://www.environment.gov.au/heritage/ahc/publications/commission/books/ourhouse/index.html>



Portal Frame is probably the most basic construction in building, typically used for warehouses, garages, barns and other low rise buildings where large open space are required in low cost. Steel is generally used in such construction and corrugated iron is used as roof or wall panel. The connections between the columns and the rafters are designed to be moment-resistant. Because of these very strong and rigid joints some of the bending moment in the rafters is transferred to the columns. This means that the size of the rafters can be reduced or the span can be increased for the same size rafters. This makes portal frames a very efficient construction technique to use for wide span buildings.



**Timber framing or half-timbering** is a method of building which relies on a timber frame as a basic means of structural support. It is referred to as 'light weight structure' but like skeleton in our body, it's a precision engineered structure that is remarkably strong and durable. Timber frame is normally constructed using heavy timber jointed together with pegged mortise and tenon joints. The use of the CNC machine has enabled this construction method to speed up. Plaster boards or other sheet materials are attached to both sides of the timber structure creating wall panels, with material like fiberglass, wool, foam or wattle and daub infilling the space between creating sound and thermal insulation.



**Straw Bale Construction** is a building method that uses bales of straw (commonly wheat, rice, rye and oats straw) as structural elements, building insulation, or both. This construction method is rather eco-friendly since straw bale is a highly renewable material. Most of the time, straw bale is constructed together with timber frame. Other construction method for housing includes **Steel Framing** (also commonly used in high rise buildings), **Cordwood Construction**, **Hempcrete Construction** etc.



**Concrete** is now the most widely used building material in the world and has been around a long time dating back two thousand years to its first structural use by the Romans. Concrete is a very durable material but its use was limited to compression structure due to its poor tensile strength. Without reinforcement, many concrete buildings would not have been possible. The earliest surviving Australian reinforced concrete structures date from the 1860s. Reinforced concrete can encompass many types of structures and components, including slabs, walls, beams, columns, foundations, frames and more.

### Steel Reinforced Concrete

The most common reinforcement for concrete is by using steel bars. Steel has high strength in tension, when placed in concrete, the composite material could resist both compression and tensile stress.

Advantages of steel reinforced concrete:

1. The coefficient of thermal expansion of steel is similar to concrete, therefore reduce the stress due to difference of thermal expansion and contraction.
2. Steel has high stiffness thus providing resistance to compression stress when fiber reinforcement will fail to do so.

Although the alkaline chemical environment provided by concrete protects the embedded steel from corrosion, carbonation, Sulfates, Chloride and other chemicals in harsher environments might still cause steel to corrode and lead to construction failure. To overcome this problem, epoxy-coated, hot dip galvanized or stainless steel rebar could be used. Coating rebars with zinc phosphate is a cheaper option.



### Fiber Reinforced Concrete

Reinforcing concrete with fibers has been around since ancient times when horse hair was used in mortar and straw in mud bricks. By 1960s, glass and synthetic fibers (such as polypropylene fibers) were used to reinforce concrete. Reinforcing concrete with fiber overcomes the problem of corrosion, but fiber only increases the tensile strength, it is unable to replace structural steel reinforcement when compression resistance is also required. Micro fibers are proved to be better in impact resistance than long fibers.



### Engineered Cementitious Composite (ECC)

ECC is a newly developed fiber reinforced concrete. Unlike common fiber reinforced, it is a micromechanically designed material. It is 500 times more resistant to cracking and 40% lighter than traditional concrete. The basic difference in the properties of ECC and fiber reinforced concrete is that the fibers create many microcracks with a very specific width, rather than a few very large cracks and after cracking the ECC strain hardens while the fiber reinforced concrete does not exhibit such behaviour. Further studies and development are still in progress.



The Villa Savoye, work of Le Corbusier is probably one of the most famous building constructed with reinforced concrete.

**Natural Fiber Reinforced Concrete** is made of cellulose fibers processed from genetically modified slash pine trees. Some studies were performed using **waste carpet fibers** in concrete as an environmentally friendly use of recycled carpet waste.



# mies van der rohe

## - steel and glass



Mies van der Rohe's work in steel and glass is legendary. The industrial materials of steel and glass to used to create a facade and layout that was beautiful in its own simplicity.

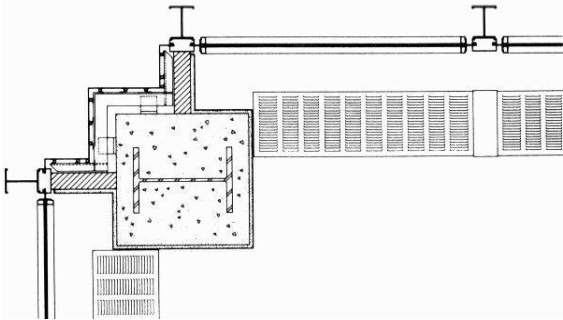
Lake Shore Drive Apartments in Chicago, a pair of rectangular, twenty-five-story towers called the world's first all-glass-and-steel apartment building. that he imparts to the rythms and proportions of his façades. the steel skeletal frame is based on a 21-foot grid and is clearly expressed in the elevations, indicated by black-painted steel sheets covering the fireproofed columns and beams.

In 1922 Mies introduced the concept of ribbon windows,uninterrupted bands of glass between the finished faces of concrete slabs, in a design for a German office building. That has since become the basis for many commercial structures.



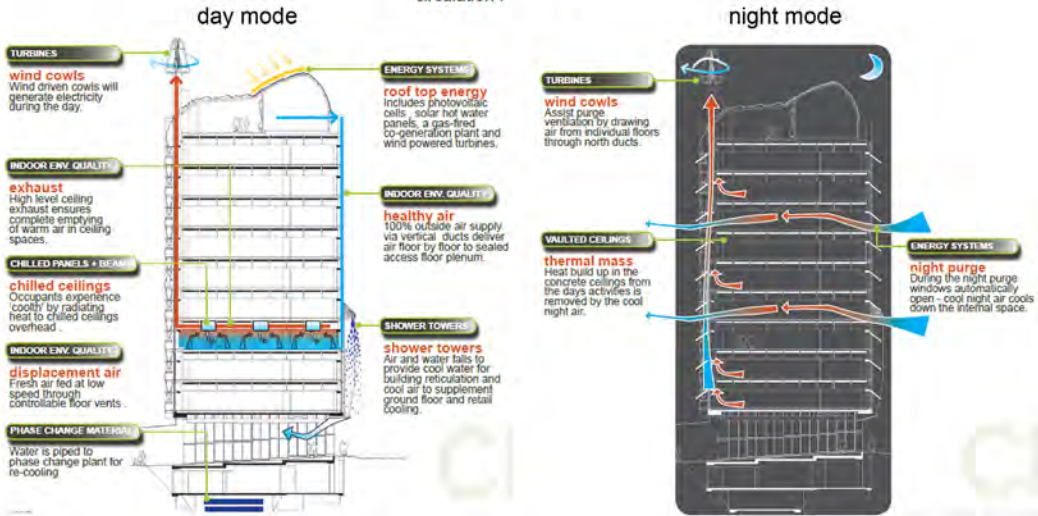
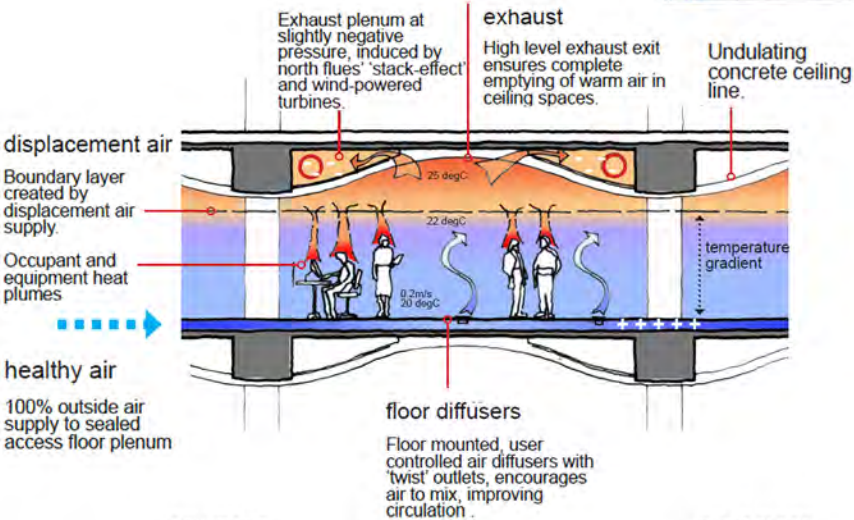
The I-beams of the Farnsworth House are both structural and expressive

A detail of the Seagram building's construction show steel, concrete and glass connections



As the awareness of the importance of sustainability continuously increase, smarter system and products are needed in our everyday life. In this era, recycling is simply not enough to safe our planet, we need ways and systems that could help us reduce and minimize energy consumption, waste and pollutants. After all, reduce comes first in the 3Rs theory (reduce, reuse then recycle). Much of the intelligent product and system uses very basic concept, little and simple material to achieve a great amount of savings.

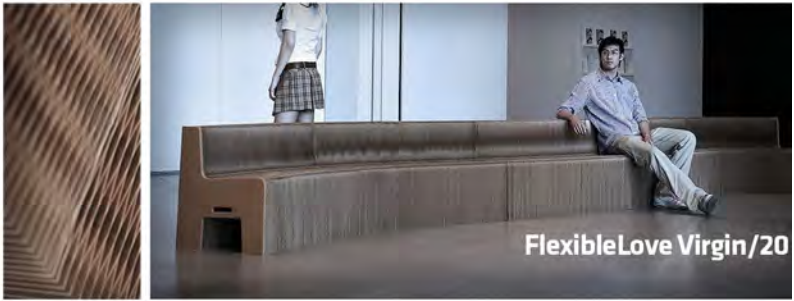
The Council House 2 (CH2), an office building located in Melbourne CBD, best demonstrates the basic system of saving energy in a large scale structure. the diagrams below demonstrate some of the intelligent system within the building.





The examples below shows some basic principle and machanism being applied on some award winning designs.

The **Flexible Love** chair designed by Taiwanese designer Chishen Chiu is made from recycled paper and wood chips, using the honeycomb structure which allows the chair to extand manymore times than its original wtdth. Saving huge amount of space when not in use.



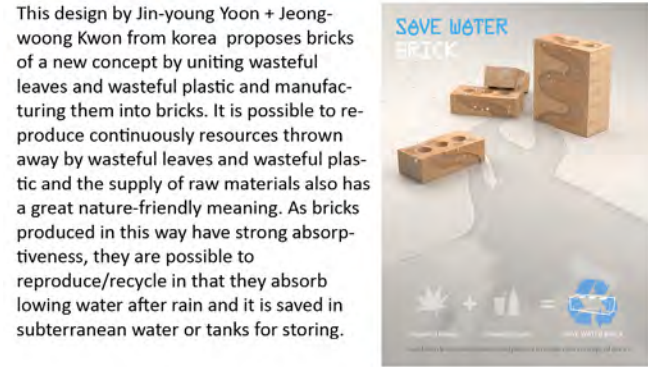
The **Empower** chair by Ryan Klinger and the **Murakami chair** (1st prize winner of the designboom competition) by Rochus Jacob both proposed the idea of energy generated by the rocking motion of the user.



**Thermodynamic Cooler** also designed by Rochus Jacob is a cooling container designed basing on the fact that water takes away heat when evaporating. Wet glass foam was placed in the space between container walls which holds water while it evaporates. As the water evaporates it takes away the heat inside the container. Although it's just a everyday product, the basic principle behind it could potentially be useful in buildings cooling system.



It might not look like it, but inside this box, there's an armoire, a desk, a height-adjustable stool, two more stools, a six-shelf bookcase, and a bed with a mattress. **Casulo**, the brilliant, modular setup designed by Marcel Krings & Sebastian Mühlhäuser, hides furnishings enough for an entire room in a small 31"x47" (that's 80 cm x 120 cm) box. It takes very little time and no tools to setup, a perfect solution for frequent movers.



other brilliant designs also includes various ways of space saving.





**Prefabrication Housing (Prefab house)**, unlike traditional site-built (stick built) houses are entirely or mostly constructed in a factory and are later assembled on site within a very short time. The history of prefab houses dates back to the early 1900s when companies like Sears offered housing kits. Since then prefab housing technique continues to improve and starts to get more associate with architecture and design. **Prefab** is an umbrella term that covers a variety of factory-built houses, such as **mobile (manufactured)**, **modular**, **panelized** and **pre-cut kit homes**.



### Manufactured house

**Mobile (manufactured) house** is the earliest version of the prefab housing. They are constructed entirely in the factory on non-removable steel frames, known as chasses. The chasses are used for transporting the homes and for permanent support. After the construction, the manufactured house is moved to the site location where it is placed on concrete slabs. Wheels are removed and the house remains movable but that rarely happens.



Manufactured houses ready for transport



Manufacturing Processes



Complete Self-Contained Camps for Disaster Relief

### Modular house

Unlike **Manufactured house**, **Modular House** is a much more higher class (and of course more expensive) prefab housing. In fact it could be very difficult to tell the differences of the modular house from stick built ones for untrained eye. Modular house are not entirely construct in the factory, instead, parts and modules are made and they are later assemble on site much like puzzles. This allows bigger size and more storeys to be built. There are 2 types of modular house, the pre-cut and panelized, but sometimes both are used in the same construction.

**Panelized homes** consist of factory built walls (windows and doors included) that are shipped as one-dimensional unit to be assembled on-site. **Pre-cut house** is factory-assembled in full dimensional units. It provides the elements in pre-sized and pre-shaped puzzle-type pieces to be put together by builders using traditional means.

#### Advantages in Modular house:

- Modular houses are built to state and local building codes and must be installed on a foundation.
- Financing for Modular house is similar to that of stick built since it doesn't suffer the lower-quality stigma as the manufactured house does.
- Costs are controlled and waste is minimized as materials are purchased in volume.
- Earth-friendly materials like solar panels and bamboo floors are less costly when purchased in bulk. Most traditional builders cannot afford to store the inventory, but prefab manufacturers can.
- While foundation is being built on site, construction of the house starts and continues in spite of weather.
- Construction takes place in a controlled environment, impact from weather and theft of material on site is unlikely to happen.
- Average cost ranging from 10-25% less than stick-built homes. Designers could translate construction cost to high end features, elaborate details, beautiful furnishings and unique accessories.
- To protect against damage in delivery, wallboards are both screwed and glued to stud walls, additional steel plates are used to maintain rigidity, and 20-30% more lumber is used in the framing. Extra durability needed for travel means factory-built home is sturdier than site-built.

#### Facts and properties of Modular house:

- The reputation as cheap, boring and poor construction was perhaps earned during the 1970s and 1980s when builders lined developments with hastily assembled homes that could be had for reasonable rates.
- In the past decade,, design improvements, technology innovations and high standard maintained through local agencies that impose strict code enforcement have moved modular construction to a whole new realm.
- The most important innovation of the past five years has been the development of 2 storey models. This step forward has been made possible through factory expansion, engineering, materials improvement and most importantly improved transportation potential.
- Generally a factory built house will be on the assembly line for 5 days.
- Unlike site-built homes, which begin with exterior framing and roofing, modular homes are built from the inside out.





## Examples of prefab architecture



**IKEA**, the innovative Swedish design company, is now making homes in boxes for large scale developments in Europe. They are built in a quality-controlled factory, delivered and assembled in a day. The BoKlok (pronounced Boo Clook) housing concept, a partnership between property company Live Smart @ Home and Swedish furniture giant IKEA. It will offer UK families a stylish, efficient and affordable housing option. The first BoKlok site in the UK will be in Gateshead.

**Qube**--a UK company offering a "neat as a pin" wood clad cube of extra house for you to use as you please. They've use Western Red Cedar for the external cladding. The Qube is built with structural insulated panels then plasterboarded and skimmed, ready to be painted. The doors are bi-fold aluminium that can be fully opened, bringing the garden into your office. You can order any size, have it one storey or two (two will require planning permission). Or why not have a roof deck with a staircase up from your office? The ceiling can be made from stretch-pvc (cool stuff) and the roof is covered with a single ply membrane. Lead times are just 4-6 weeks from order. The Qube can be a garden shed, an office, art studio, TV or game room, kids play room, work-out gym, sales office or a spot for home based for hair stylists. [www.theqube.co.uk](http://www.theqube.co.uk)

**Cellophane House**-- is five stories tall, with floor-to-ceiling windows, translucent polycarbonate steps embedded with LEDs, and exterior walls made of NextGen SmartWrap, an experimental plastic laminated with photovoltaic cells. Its aluminum frame was cut from off-the-shelf components in Europe, assembled in New Jersey, then snapped together in 16 days on a vacant lot next to the Museum of Modern Art — joining four other full-size houses onsite through October as part of the exhibit Home Delivery: Fabricating the Modern Dwelling.

**Form and Forest**--both large and small homes available from this Canadian firm owned by two brothers. Form & Forest offers a range of cabins that have been designed for how you live at the cabin, both inside and out. Generous indoor and outdoor living spaces group the eating, entertaining and relaxing together while offering seclusion for sleeping and quiet reading. The generous decks and large windows are designed into the plans with the full expectation that you will be building your cabin in a pretty fantastic landscape. If you have a piece of vacation property to build a cabin on, Form & Forest will enable you to experience it fully. Form & Forest is the brainchild of Jeff and Ryan Jordan. Aside from being brothers, they also happen to share a dual passion for both great design and weekend escapes to the cabin. [www.formandforest.com](http://www.formandforest.com)

Prefab method also apply to smaller scale product such as toilets and kitchen.



prefab shower rooms for disaster relief



prefab toilet for hotels



prefab mobile toilets for public events



Manufactured by Japanese furniture makers Atelier OPA, the Kenchikukagu series of mobile furniture, draws on the concept of Skeleton Infill housing- a concept in which the skeleton of the house is preserved while the insides change to highlight the space saving ingenuity of the region. With highly effective designs like a mobile work station, a mobile bed and a mobile kitchen thrown in, the series allows apartment dwellers to cramp in all the essential furniture necessary for urban living, without compromising on form or functionality. This design overlaps both the concept of Prefab and properties of intelligent product.



